

WHAT IS CLAIMED IS:

1. An image record medium comprising:

an image record layer on which an image is recorded upon
5 application of exposure light; and

a functional layer formed on one of both sides of the
image record layer and having a function of transmitting the
exposure light and a function of shielding visible light.

10 2. The image record medium according to claim 1
wherein the functional layer has a function of transmitting
exposure light in a predetermined wavelength range.

15 3. The image record medium according to claim 1,
wherein the functional layer transmits the exposure
light from an incidence side of the exposure light to the image
record layer on an opposite side to the incidence side at least
when the exposure light is applied; and

20 the functional layer shields visible light when the image
recorded on the image record layer is observed.

25 4. The image record medium according to claim 1
wherein the image record layer has a display layer whose optical
characteristic changes upon application of voltage and a
photoconductive layer whose electric characteristic changes

upon application of the exposure light representing the image.

5. An image record apparatus, comprising:

a light application section for applying exposure light

5 to a plurality of image record media;

a voltage application section for applying an image write
voltage to each of the plurality of image record media; and

10 a control section for controlling the light application
section and the voltage application section so that exposure
light representing an image is applied to the plurality of
placed image record media and the image write voltage is applied
to the image record medium on which the same visible image as
the image is to be recorded,

15 wherein the plurality of image record media each for
recording an image upon application of exposure light and
application of a voltage and each having an image record layer
on which an image is recorded upon application of exposure light
and a functional layer formed on one of both sides of the image
record layer and having a function of transmitting the exposure
20 light and a function of shielding visible light are stacked
on each other for placement to record a visible image on each
of the image record media stacked on each other for placement.

6. The image record apparatus according to claim 5
25 wherein the control section controls the light application

section and the voltage application section so that exposure light is applied to the plurality of placed image record media and the image write voltage is applied to the plurality of placed image record media at the same time to record the same visible image on each of the image record media.

7. The image record apparatus according to claim 5 wherein the control section controls the light application section and the voltage application section so that an image write process of applying the exposure light representing an image to the plurality of placed image record media and applying the image write voltage to the image record medium on which the same visible image as the image is to be recorded is repeated while changing to exposure light representing a different image and applying the image write voltage to a different image record medium are being conducted, thereby recording each visible image on each of the image record media.

8. The image record apparatus according to claim 5 wherein the control section controls the light application section and the voltage application section so as to reset to record a uniform initial image on the image record medium before the visible image is recorded on the image record medium.

9. An image record medium comprising:

first and second image record layers on which an image is recorded upon application of exposure light; and

a functional layer formed between the first and second image record layers and having a function of transmitting the exposure light and a function of shielding visible light.

10. The image record medium according to claim 9 wherein the functional layer has a function of transmitting exposure light having a wavelength within a predetermined range.

11. The image record medium according to claim 9, wherein the functional layer transmits the exposure light from the first image record layer to the second record layer at least when the exposure light is applied;

the functional layer shields visible light from the first record layer to the second image record layer when the image recorded on the second image record layer is observed; and

the functional layer shields visible light from the second record layer to the first image record layer when the image recorded on the first image record layer is observed.

12. The image record medium according to claim 9, wherein each of the first and second image record layers has a display layer whose optical characteristic changes upon

application of voltage and a photoconductive layer whose electric characteristic changes upon application of the exposure light representing the image.

5 13. The image record medium according to claim 12, wherein the display layers of the first and second image record layers differ in threshold voltage for changing the optical characteristic.

10 14. An image record apparatus for recording a visible image on an image record medium, comprising:

an exposure section for applying exposure light to an image record medium;

15 a voltage application section for applying an image write voltage to the image record layer forming a part of the image record medium; and

a write control section,

20 wherein the image record medium is recorded the image thereon upon application of the exposure light and application of the voltage;

the image record medium comprises first and second image record layers on which the image is recorded upon the application of exposure light and a functional layer formed between the first and second image record layers and having
25 a function of transmitting the exposure light and a function

of shielding visible light; and

the write control section controls the exposure section and the voltage application section so that when a visible image is recorded on the first image record layer on a front surface side close to the exposure section, exposure light representing the image to be recorded on the first image record layer is applied to the image record medium and write voltage and voltage improper to write are applied to the first image record layer and the second image record layer on a rear surface side away from the exposure section, respectively and that when a visible image is recorded on the second image record layer on the rear surface side, exposure light representing the image to be recorded on the second image record layer is applied to the image record medium and write voltage and voltage improper to write are applied to the second image record layer and the first image record layer, respectively.

15. The image record apparatus according to claim 14 wherein the exposure section changes a light amount of the exposure light when a visible image is recorded on the first image record layer of the placed image record medium and when a visible image is recorded on the second image record layer.

16. The image record apparatus according to claim 14 wherein the write control section controls the exposure section

and the voltage application section so that a visible image is first recorded on the second image record layer of the placed image record medium and a visible image is next recorded on the first image record layer.

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17. The image record apparatus according to claim 14 wherein before a visible image is recorded on the second image record layer of the placed image record medium, the electric voltage section applies reset voltage for resetting to record a uniform initial image at least to the first image record layer of the first and second image record layers.

18. The image record apparatus according to claim 14, wherein each of the first and second image record layers has a display layer made of a cholesteric liquid crystal whose optical characteristic changes upon application of voltage for recording a visible image; and

the voltage application section records a visible image on the second image record layer while applying voltage to the first image record layer.

19. The image record apparatus according to claim 14 wherein when applying exposure light representing an image to the second image record layer, the exposure section applies exposure light representing a mirror image of the visible image

to be recorded on the second image record layer to the image
record medium.

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